

Applicant : Donald F. Hooper  
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Attorney's Docket No.: 10559-222001 / P8715  
Intel Corporation

### REMARKS

Applicant has renumbered claims 26-36 as claims 25-35, and has revised the claim dependencies of the affected claims accordingly. The applicant thanks the Examiner for pointing out the claim numbering error. Applicant has amended independent claim 23 to include a feature, similar to the feature appearing in renumbered independent claim 28, that the program comprises instructions that cause the look-up engines to traverse in parallel the trie tables. Support for this added feature may be found, for example, at page 5, lines 19-22, and page 11, line 20 to page 12, line 11. Independent claim 28 was amended to correct a typographical error. Applicant has also amended claims 23-25 and 28 for greater clarity. After these amendments claims 23-35 are pending.

The Examiner rejected claims 23, 24, and 26-36 (now renumbered as claims 25-35) under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,192,051 to Lipman in view of U.S. Patent No. 6,493,347 to Sindhu.

Applicant's amended independent claim 23 recites a router that includes look-up engines and memory storing data structures that include trie tables, as well as computer instructions that "cause the look-up engines to traverse in parallel the trie tables." By having several trie tables corresponding to overlapping IP address spans, and searching those trie tables in parallel, determination of the shortest route to an IP destination is performed more efficiently and expeditiously than conventional route determination techniques that identify the shortest route to a network node using a single data structure (such as a binary tree structure).

Lipman describes a network routing apparatus that employs a multi-level tree data structures in a centralized routing table and in distributed forwarding tables (Abstract). While Lipman discloses that there can be multiple lookups pending at a given time (col. 14, lines 29-32), those lookups correspond to different lookup requests from different ports (col. 14, lines 32-33). Further, while Lipman's comparison logic 192 is capable of comparing the search key to four tree entries simultaneously, those comparisons are conducted on a single tree node, for example, a level-2 tree or level-3 tree node. Lipman, however, does not disclose or suggest that multiple tries structures are traversed in parallel with respect to a look-up request. Indeed,

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Lipman does not even disclose that multiple trie structures are employed to facilitate quick determination of the shortest route for a given IP address.

Sindhu describes a router for switching data packets from a source to a destination in a network, in which distributed memory banks are used to store uniform portions of received data packets (Abstract). Sindhu also discloses a controller 106 that performs a trie-based search, based on key information read from the data packets, to identify the output ports through which the data packets should be routed (col. 6, lines 9-30). Sindhu further discloses that the controller has a plurality of look-up engines that can perform port identification searches for different look-up requests (col. 16, lines 48-56). However, Sindhu does not disclose or suggest that any of the look-up engine traverses multiple trie tables or structures in parallel to determine the longest prefix match, as in applicant's independent claim 23. Moreover, Sindhu is silent on how its trie structures are configured or arranged, or what data are stored in the trie structures. Accordingly, Sindhu does not disclose that its system uses multiple trie structures.

Since neither Lipman nor Sindhu discloses or suggests, alone or in combination, at least the feature of "computer instructions that, when executed, cause the look-up engines to traverse in parallel the trie tables", applicant's independent claim 23 is patentable over the cited art. Claims 24-27 depend from independent claim 23 and are therefore patentable for at least the same reasons as independent claim 23.

Independent claim 28 recites "traversing in parallel the two trie tables of trees to find a match of a trie entry to the prefix." For similar reasons as those provided with respect to independent claim 23, at least this feature is not disclosed by the cited art. Claim 29-35 depend from independent claim 28 and are therefore patentable for at least the same reasons as independent claim 28.

It is believed that all the rejections and/or objections raised by the examiner have been addressed.

All of the dependent claims are patentable for at least the reasons for which the claims on which they depend are patentable.

Canceled claims, if any, have been canceled without prejudice or disclaimer.

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Any circumstance in which the applicant has (a) addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

Please apply any charges to deposit account 06-1050, referencing attorney docket 10559-222001.

Respectfully submitted,

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